



# AEC-NASA TECH BRIEF



AEC-NASA Tech Briefs describe innovations resulting from the research and development program of the U.S. AEC or from AEC-NASA interagency efforts. They are issued to encourage commercial application. Tech Briefs are published by NASA and may be purchased, at 15 cents each, from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

## Silver Plating Technique Seals Leaks in Thin Wall Tubing Joints

### The problem:

The inner surface of a rocket nozzle consists of a number of Inconel X-750 thin wall tubes brazed together, side-by-side, completely around the inner surface. The tube material provides for the passage of coolant. After complete fabrication and during testing of the nozzle, leaks have been found at the braze joints. Normally, leaks are repaired by torch or tungsten inert gas brazing. This technique is not satisfactory for Inconel X-750 thin wall tube material because the material is susceptible to cracking after being completely fabricated.

### The solution:

The hot gas side of the joint in the leakage area is cleaned and is stylus silver plated. The pressure differential across the silver during hydrostatic test and subsequent use forces the ductile silver into the leak area and seals it.

### How it's done:

The material is cleaned and smoothed in the leakage area by sand blasting or with abrasive paper or cloth. The hot gas side of the joint in the leakage area is electroplated with silver by a hand stylus (Dalic)

method. The silver plating is built up to a thickness to cover and seal the leaks.

### Notes:

1. This technique is highly advantageous over other methods because it does not require the application of heat.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
AEC-NASA Space Nuclear Propulsion  
Office  
U.S. Atomic Energy Commission  
Washington, D.C. 20545  
Reference: B66-10703

### Patent status:

No patent action is contemplated by AEC or NASA.

Source: W. H. Bladerman  
of North American Aviation, Inc.,  
under contract to  
AEC-NASA Space Nuclear Propulsion Office  
(NU-0090)

Category 05